



Rocky Flats Environmental Technology Site

TYPE 1 RECONNAISSANCE LEVEL CHARACTERIZATION REPORT (RLCR)

CLOSURE PROJECT FOR BUILDING 903A2

REVISION 0

June 18, 2003



**CLASSIFICATION REVIEW NOT REQUIRED PER
EXEMPTION NUMBER CEX-005-02**


**TYPE 1
RECONNAISSANCE LEVEL CHARACTERIZATION
REPORT (RLCR)**

CLOSURE PROJECT FOR BUILDINGS 903A2

REVISION 0

June 18, 2003

Reviewed by:


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6/18/03

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ABBREVIATIONS/ACRONYMS

ACM	Asbestos containing material
Be	Beryllium
CDPHE	Colorado Department of Public Health and the Environment
CERCLA	Comprehensive Emergency Response, Compensation and Liability Act
DCGL _{EMC}	Derived Concentration Guideline Level – elevated measurement comparison
DCGL _w	Derived Concentration Guideline Level – Wilcoxon Rank Sum Test
D&D	Decontamination and Decommissioning
DDCP	Decontamination and Decommissioning Characterization Protocol
DOE	U S Department of Energy
DPP	Decommissioning Program Plan
DQA	Data quality assessment
DQOs	Data quality objectives
EPA	U S Environmental Protection Agency
FDPM	Facility Disposition Program Manual
HVAC	Heating, ventilation, air conditioning
HSAR	Historical Site Assessment Report
IHSS	Individual Hazardous Substance Site
IWCP	Integrated Work Control Package
K-H	Kaiser-Hill
LBP	Lead-based paint
LLW	Low-level waste
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MDA	Minimum detectable activity
MDC	Minimum detectable concentration
NORM	Naturally occurring radioactive material
NRA	Non-Rad-Added Verification
OSHA	Occupational Safety and Health Administration
PARCC	Precision, accuracy, representativeness, comparability and completeness
PCBs	Polychlorinated Biphenyls
PDS	Pre-demolition survey
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
RFCA	Rocky Flats Cleanup Agreement
RFETS	Rocky Flats Environmental Technology Site
RFFO	Rocky Flats Field Office
RLC	Reconnaissance Level Characterization
RLCR	Reconnaissance Level Characterization Report
RSP	Radiological Safety Practices
SVOCs	Semi-volatile organic compounds
TCLP	Toxicity Characteristic Leaching Procedure
TSA	Total surface activity
VOCs	Volatile organic compounds

EXECUTIVE SUMMARY

A Reconnaissance Level Characterization (RLC) was performed to enable facility "Typing" per the DPP (10/8/98) and compliant disposition and waste management of Building 903A2. Because this facility was anticipated to be a Type 1 facility, the characterization was performed in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP). All facility surfaces were characterized in this RLC, including the interior and exterior surfaces [i.e., floors (slabs), walls, ceilings and roofs]. Environmental media beneath and surrounding the facility was not within the scope of this RLCR and will be addressed at a future date using the Soil Disturbance Permit process and in compliance with RFCA.

The RLC encompassed both radiological and chemical characterization to enable compliant disposition and waste management pursuant to the D&D Characterization Protocol (MAN-077-DDCP). The characterization built upon physical, chemical and radiological hazards identified in the facility-specific Historical Site Assessment Reports.

Results indicate that no radiological contamination exists in excess of the PDSP unrestricted release limits of DOE Order 5400.5. Laboratory results of building materials suspected of containing asbestos were "None Detected." All beryllium sample results were less than $0.1 \mu\text{g}/100\text{cm}^2$. Based upon this RLCR, Building 903A2 is considered a Type 1 facility. To ensure that the facility remains free of contamination and the RLC data remain valid, Level 2 Isolation Controls have been established and the facility posted accordingly.

1 INTRODUCTION

A Reconnaissance Level Characterization (RLC) was performed to enable compliant disposition and waste management of Building 903A2. Because this facility was an anticipated Type 1 facility, a PDS characterization was performed. All facility surfaces were characterized in this RLC, including the interior and exterior surfaces of the facility [i.e., floors (slabs), walls, ceilings and roofs]. Environmental media beneath and surrounding the facility was not within the scope of this RLC Report (RLCR) and will be addressed at a future date using the Soil Disturbance Permit process and in compliance with RFCA.

As part of the Rocky Flats Environmental Technology Site (RFETS) Closure Project, numerous facilities will be removed, among these is Building 903A2. The location of this facility is shown in Attachment A, *Facility Location Map*. This facility no longer supports the RFETS mission and needs to be removed to reduce Site infrastructure, risks and/or operating costs.

Before the facility can be removed, a Pre-Demolition Survey (PDS) must be conducted, this document presents the PDS results. The PDS was conducted pursuant to the Decontamination and Decommissioning Characterization Protocol (MAN-077-DDCP) and the Pre-Demolition Survey Plan for D&D Facilities (MAN-127-PDSP). The PDS built upon physical, chemical and radiological hazards identified in the facility-specific Historical Site Assessment Report for the Area 5 - Group 14 Facilities, dated December 2002, Revision 0.

1.1 Purpose

The purpose of this report is to communicate and document the results of the RLC effort. A RLC is performed before building demolition to define the pre-demolition radiological and chemical conditions of a facility. The pre-demolition conditions are compared with the release limits for radiological and non-radiological contaminants. RLC results will enable project personnel to make final disposition decisions, develop related worker health and safety controls, and estimate waste volumes by waste types.

1.2 Scope

This report presents the pre-demolition radiological and chemical conditions of Building 903A2. Environmental media beneath and surrounding the facility is not within the scope of this RLCR and will be addressed using the Soil Disturbance Permit process and in compliance with RFCA.

1.3 Data Quality Objectives

The Data Quality Objectives (DQOs) used in designing this RLC were the same DQOs identified in the Pre-Demolition survey Plan for D&D Facilities (MAN-127-PDSP). Refer to section 2.0 of MAN-127-PDSP for these DQOs.

2 HISTORICAL SITE ASSESSMENT

A facility-specific Historical Site Assessment (HSA) was conducted to understand the facility history and related hazards. The assessment consisted of facility walkdowns, interviews, and document review, including review of the Historical Release Report (refer to the D&D Characterization Protocol, MAN-077-DDCP). Results were used to identify data gaps and needs, and to develop radiological and chemical characterization packages. Results of the facility-specific HSA was documented in a facility-specific *Historical Site Assessment Report (HSAR) for the Area 5 – Group 14 Facilities*, Dated December, 2002, Revision 0. Refer to Attachment B, *Historical Site Assessment Report*, for a copy of the Building 903A2 HSAR. In summary, the HSAR identified no potential for radiological and chemical hazards, except the potential for asbestos containing materials.

3 RADIOLOGICAL CHARACTERIZATION AND HAZARDS

Building 903A2 was characterized for radiological hazards per the PDSP. Radiological characterization was performed to define the nature and extent of radioactive materials that may be present on the facility surfaces. Measurements were performed to evaluate the contaminants of concern. Based upon a review of historical and process knowledge, building walk-downs, and MARSSIM guidance, Radiological Characterization Plans were developed during the planning phases that describe the minimum survey requirements (refer to the RISS Characterization Project files).

One radiological survey package was developed for the interior and exterior of Building 903A2. The survey package was developed in accordance with Radiological Safety Practices (RSP) 16 01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation and Closure*. Total surface activity (TSA), removable surface activity (RSA), and scan measurements were collected in accordance with RSP 16 02 *Radiological Surveys of Surfaces and Structures*. Radiological survey data were verified, validated and evaluated in accordance with RSP 16 04, *Radiological Survey/Sample Data Analysis*. Quality control measures were implemented relative to the survey process in accordance with RSP 16 05, *Radiological Survey/Sample Quality Control*. Radiological survey data, statistical analysis results, and survey locations are presented in Attachment C, *Radiological Data Summary and Survey Maps*. The radiological survey unit package is maintained in the RISS Characterization Project files.

Thirty two (32) TSA measurements (15 random, 10 biased, 5 equipment and 2 QC) and thirty (30) RSA measurements (15 random, 10 biased, 5 equipment) were performed, and a 100% scan of the facility interior floor surfaces and 10% scan of the remaining interior and exterior surfaces of the facility were scanned. The RLC data confirmed that this facility does not contain radiological contamination above the surface contamination guidelines provided in the PDSP. Radiological survey data, statistical analysis results, and survey locations are presented in Attachment C, *Radiological Data Summary and Survey Maps*. The radiological survey unit package is maintained in the RISS Characterization Project files. Level 2 Isolation Control postings are displayed on the buildings to ensure no radioactive materials are inadvertently introduced.

4 CHEMICAL CHARACTERIZATION AND HAZARDS

Building 903A2 was characterized for chemical hazards per the PDSP. Chemical characterization was performed to determine the nature and extent of chemical contamination that may be present on or in the facility. Based upon a review of historical and process knowledge, visual inspections, and PDSP DQOs, additional sampling needs were determined. A Chemical Characterization Plan (refer to RISS Characterization Project files) was developed during the planning phase that describes sampling requirements, the justification for the sample locations and estimated sample numbers. Contaminants of concern included asbestos, beryllium, RCRA/CERCLA constituents, and PCBs.

4.1 Asbestos

A survey of building materials suspected of containing asbestos was conducted in the aforementioned building in accordance with the RLCP criteria. A CDPHE-certified asbestos inspector conducted the inspection and survey in accordance with the *Asbestos Characterization Protocol*, PRO-563-ACPR, Revision 1. All laboratory results of building materials suspected of containing asbestos in Building 903A2 were "None Detected." Refer to Attachment D, *Chemical Data Summaries and Sample Maps*, for details on sample results and sample locations.

4.2 Beryllium (Be)

Based on the HSAR and personnel interviews, this building was an anticipated Type 1 facility. There was not, however, adequate historical and process knowledge to conclude that beryllium was not used or stored in this building. Therefore, biased beryllium sampling was performed in accordance with the PDSP and the *Beryllium Characterization Procedure*, PRO-536-BCPR, Revision 0, September 9, 1999. Biased sample locations corresponded with the most probable areas of dust accumulation (including beryllium dust), assuming airborne deposition.

All beryllium smear sample results were less than $0.1 \mu\text{g}/100\text{cm}^2$. Beryllium laboratory sample data and location maps are contained in Attachment D, *Chemical Data Summaries and Sample Maps*.

4.3 RCRA/CERCLA Constituents [including metals and volatile organic compounds (VOCs)]

Based on a review of the HSAR and a facility walk-down, 903A2 was used as a general storage area and has no history of RCRA/CERCLA materials. Therefore, RCRA/CERCLA constituent sampling was not performed in this facility as part of the RLC.

Sampling for lead in paint in B903A2 was not performed. Environmental Waste Compliance Guidance #27, *Lead-based Paint (LBP) and Lead-based paint Debris Disposal*, states that LBP debris generated outside of currently identified high contamination areas shall be managed as non-hazardous (solid) waste, and additional analysis for characteristics of hazardous waste derived from LBP is not a requirement for disposal.

4.4 Polychlorinated Biphenyls (PCBs)

Based on the HSARs, interviews and facility walk-downs of Building 903A2, no PCB-containing equipment was ever present in the building, making the potential for PCB contamination resulting from spills highly unlikely. Therefore, PCB sampling was not performed in Building 903A2 as part of the RLC.

Based on the age of Building 903A2 (constructed after 1980), paints used do not contain PCBs. Additionally, there are no suspected PCB light ballasts in this facility.

5 PHYSICAL HAZARDS

Physical hazards associated with Building 903A2 consist of those common to standard industrial environments and include hazards associated with energized systems, utilities, and trips and falls. Care should be taken during demolition activities as Building 903A2 is near IHSS 900-119 2, "East Scrap Metal Storage Area and Solvent Spill". The facility has been relatively well maintained and is in good physical condition, and therefore, does not present hazards associated with building deterioration. Physical hazards are controlled by the Site Occupational Safety and Industrial Hygiene Program, which is based on OSHA regulations, DOE orders, and standard industry practices.

6 DATA QUALITY ASSESSMENT

Data used in making management decisions for decommissioning of Building 903A2, and consequent waste management, are of adequate quality to support the decisions documented in this report. The data presented in this report (Attachments C and D) were verified and validated relative to DOE quality requirements, applicable EPA guidance, and original DQOs of the project.

In summary, the Verification and Validation (V&V) process corroborates that the following elements of the characterization process are adequate:

- ◆ the *number* of samples and surveys,
- ◆ the *types* of samples and surveys,
- ◆ the sampling/survey process as implemented "in the field", and,
- ◆ the laboratory analytical process, relative to accuracy and precision considerations.

Details of the DQA are provided in Attachment E, *Data Quality Assessment Detail*.

7 DECOMMISSIONING WASTE TYPES AND VOLUME ESTIMATES

The demolition and disposal of Building 903A2 will generate a variety of waste. Estimated waste types and waste volumes are presented below. All waste can be disposed of as sanitary waste. There is no radioactive or hazardous waste. Building 903A2 is a free-standing wooden structure with a wood floor. The concrete pad that 903A2 sits on was not accessible for characterization, therefore this concrete pad will be characterized in the future after the wooden structure has been removed.

Waste Volume Estimates and Material Types, Building 903A2							
Facility	Concrete (cu ft)	Wood (cu ft)	Metal (cu ft)	Corrugated Sheet Metal (cu ft)	Wall Board (cu ft)	ACM (cu ft)	Other Waste
903A2	0	200	0	0	0	0	None

8 FACILITY CLASSIFICATION AND CONCLUSIONS

Based on the analysis of radiological, chemical and physical hazards, Building 903A2 is classified as a RFCA Type 1 facility pursuant to the RFETS Decommissioning Program Plan (DPP, K-H, 1999). The Type 1 classification is based on a review of historical and process knowledge, and newly acquired RLC/PDS data.

The RLC of Building 903A2 was performed in accordance with the DDCP and PDSP. All PDSP DQOs were met, and all data satisfied the PDSP DQA criteria. Building 903A2 does not contain radiological or hazardous waste. Environmental media beneath and surrounding the facilities will be addressed at a future date using the Soil Disturbance Permit process and in compliance with RFCA. The concrete pad that 903A2 sits on was not accessible for characterization and will therefore be characterized in the future after the wooden structure has been removed.

To ensure this Type 1 facility remains free of contamination and the RLC data remain valid, Level 2 Isolation Controls have been established and the facility posted accordingly.

9 REFERENCES

DOE/RFEO, CDPHE, EPA, 1996 Rocky Flats Cleanup Agreement (RFCA), July 19, 1996

DOE Order 5400.5, "Radiation Protection of the Public and the Environment "

EPA, 1994 "The Data Quality Objective Process," EPA QA/G-4

K-H, 1999 Decommissioning Program Plan, June 21, 1999

MAN-131-QAPM, *Kaiser-Hill Team Quality Assurance Program*, Rev 1, November 1, 2001

MAN-076-FDPM, *Facility Disposition Program Manual*, Rev 3, January 1, 2002

MAN-077-DDCP, *Decontamination and Decommissioning Characterization Protocol*, Rev 3, July 15, 2002

MAN-127-PDSP, *Pre-Demolition Survey Plan for D&D Facilities*, Rev 1, July 15, 2002

MARSSIM - Multi-Agency Radiation Survey and Site Investigation Manual, December 1997 (NUREG-1575, EPA 402-R-97-016)

PRO-475-RSP-16 01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation, and Closure*, Rev 1, May 22, 2001

PRO-476-RSP-16 02, *Pre-Demolition (Final Status) Radiological Surveys of Surfaces and Structures*, Rev 1, May 22, 2001

PRO-477-RSP-16 03, *Radiological Samples of Building Media*, Rev 1, May 22, 2001

PRO-478-RSP-16 04, *Radiological Survey/Sample Data Analysis for Final Status Survey*, Rev 1, May 22, 2001

PRO-479-RSP-16 05, *Radiological Survey/Sample Quality Control for Final Status Survey*, Rev 1, May 22, 2001

PRO-563-ACPR, Asbestos Characterization Procedure, Revision 0, August 24, 1999

PRO-536-BCPR, Beryllium Characterization Procedure, Revision 0, August 24, 1999

RFETS, Environmental Waste Compliance Guidance #25, Management of Polychlorinated Biphenyls (PCBs) in Paint and Other Bulk Product Waste During Facility Disposition

RFETS, Environmental Waste Compliance Guidance #27, Lead-Based Paint (LBP) and Lead-Based Paint Debris Disposal

RFCA Standard Operation Protocol for Recycling Concrete, September 28, 1999








Historical Site Assessment Report for the Area 5 - Group 14 Facilities, Dated December, 2002, Revision 0

ATTACHMENT A

Facility Location Map

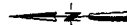
Building 903A2

Standard Map Features

-  Buildings and other structures
-  Demolished buildings and other structures
-  Lakes and ponds
-  Streams, ditches or other drainage features
-  Fences and other barriers
-  Paved roads
-  Dirt roads

DATA SOURCE BASE FEATURES:

Buildings, fences, hydrography roads and other structures from 1994 aerial fly-over data captured by EG&G RSL, Las Vegas. Digitized from the orthophotographs, 1995



Scale = 1:12480
1 inch represents approximately 1038 feet

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD27

US Department of Energy
Rocky Flats Environmental Technology Site

CD Dept. 500-966 7700

Prepared by

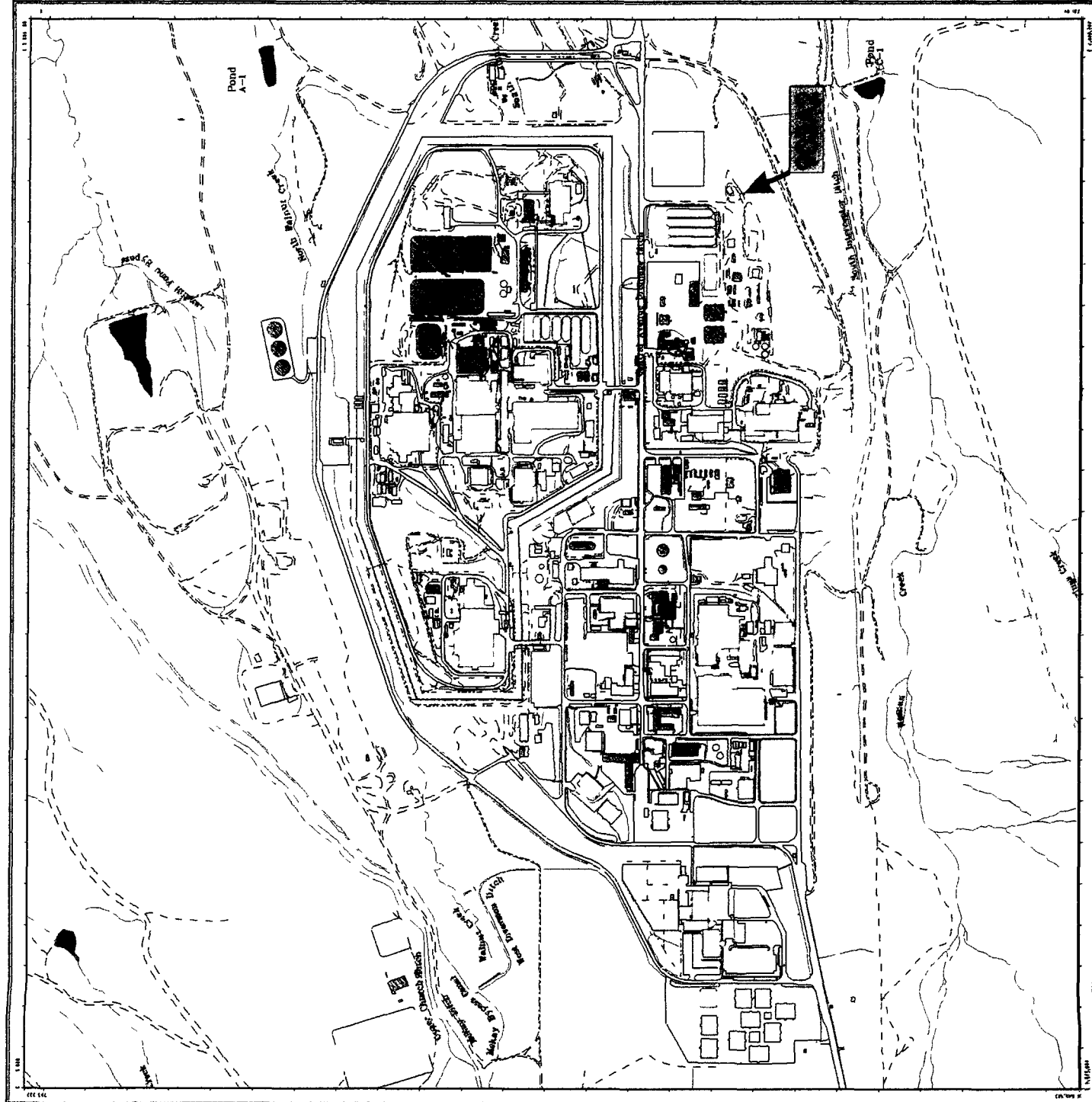
CH2M HILL

Prepared for



MAP ID: FY 2003

June 17, 2003



ATTACHMENT B

Historical Site Assessment Report

**D&D RISS Facility Characterization
Historical Site Assessment Report
December, 2002 Rev. 0**

Facility ID (AREA 5 - GROUP 14) Buildings 903A, 903A2, and 903B

Anticipated Facility Type (1, 2, or 3) Buildings 903A and 903B are anticipated Type 2 facilities Building 903A2 is an anticipated Type 2 facilities

This facility-specific Historical Site Assessment (HSA) has been performed in accordance with
D&D Characterization Protocol, RFETS MAN-077-DDCP, latest version, and
Facility Disposition Program Manual, RFETS MAN-076-FDPM, latest version

Physical Description

Buildings 903A

Building 903A is a 1,400 square-foot equipment decontamination facility called the Main Decontamination Facility (MDF) and was constructed in 1993 The facility has a concrete Decontamination Pad with a sump located in the center of the Pad, a metal roof, and a single metal wall on the west side of the Pad The facility has a plastic curtain containment system, a sump to collect fluid run-off and a pumping system to move liquids to Building 903B The Pad is sloped and curbed to contain the decontamination water and sediment

Building 903A has the following utilities electric, and fire protection is provided by wall mounted fire extinguishers Domestic water is provided by a fire hydrant located west of the MDF

Buildings 903A2

Building 903A2 is a 100 square-foot general storage shed acquired in 1993 This structure is a wood building with wood walls, wood floor and an asphalt shingle roof This building sits on a concrete pad and is located west of the 903A Main Decontamination Facility (MDF)

Building 903A2 has the following utilities electric

Buildings 903B

Building 903B is an approximately 2,800 square-foot liquid waste management building constructed in 1995 This facility has a concrete bermed floor and a collection sump in the middle of the building This building is a steel frame building constructed on a concrete foundation The walls and roof are insulated corrugated metal The building is configured with a large highbay area that houses the water treatment equipment

Building 903B had the following utilities electric, and fire protection is provided by wall mounted fire extinguishers

**D&D RISS Facility Characterization
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Historical Operations

Buildings 903A

Building 903A is the sites main decontamination facility for ER activities and is used to decontaminate field equipment such as sampling equipment, drill rigs, and field vehicles. These items are decontaminated through the use of high-pressure hot water. On occasion Liquinox or some other non-phosphorous detergent is used during this process. Prior to the beginning of decontamination activities, the equipment is surveyed to determine the presence of radioactive material. Water used on the Decontamination Pad is obtained from a fire hydrant and is pumped into a 1,200-gallon raw water supply tank. Decontamination fluids are collected by a sump in the center of the Decontamination Pad and are transferred to Building 903B (the Environmental Liquids Management Area) where the wastewater goes through several processes to remove solid.

Buildings 903A2

903A2 is a small general storage building located west of the 903A Decontamination Pad. This building is used to store PPE and for general storage in support of the 903A Decontamination Pad.

Buildings 903B

Building 903B is the Environmental Liquids Management Area for the Decontamination Pad. Wastewater is pumped from the Decontamination Pad to a series of funnel shaped separators where the solids are settled out of the wastewater and collected in 55-gallon drums. These drums are then sampled and appropriately disposed of. The final wastewater is trucked to the Building 891 water treatment facility for final treatment. In the past, only trace amounts of radioactive material and RCRA contaminants were found in the wastewater and sediment generated by the Decontamination Pad.

Current Operational Status

Buildings 903A, 903A2, and 903B are all operational.

Contaminants of Concern

Asbestos

Describe any potential, likely, or known sources of Asbestos

None of the facilities addressed in this HSA have an asbestos posting.

Beryllium (Be)

Describe any potential, likely, or known Be production or storage locations

None of the facilities addressed in this HSA are on the List of known Be Areas.

Summarize any recent Be sampling results

There have been no recent Be samples collected on any of these facilities.

**D&D RISS Facility Characterization
Historical Site Assessment Report
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Lead

Describe any potential, likely, or known sources of Lead (e g , paint, shielding, etc)

Based on the age of some of the facilities addressed in this HSA, lead in paint should not be a concern No processes containing lead were conducted in these facilities

RCRA/CERCLA Constituents

Describe any potential, likely, or known sources of RCRA/CERCLA constituents (e g , chemical storage, waste storage, and processes)

The 903 Decontamination Pad is RCRA unit 18 01, which was partially closed in accordance with "RCRA Closure Plan for Partial Closure of Interim Status Unit 18 01" (5/3/96) The remainder of the RCRA unit will be closed in accordance with "RCRA-Closure Plan for the RADP" (5/16/96) Buildings 903A and 903B are used to decontaminate field equipment with trace amounts of RCRA/CERCLA Constituents See the Historical Operations section above for a more detailed listing of the operations which occurred in the facilities addressed in this HSA

Describe any potential, likely, or known spill locations (and sources, if any)

None of the facilities in this HSA have had any RCRA/CERCLA spills

Describe methods in which spills were mitigated, if any

None of the facilities in this HSA have had any RCRA/CERCLA spills

PCBs

Describe any potential, likely, or known sources of PCBs (e g , light ballasts, paints, equipment, etc)

No PCB containing process where housed in any of the facilities addressed in this HSA Based on the age of construction of some of these facilities, PCBs in paint should not be a concern

Describe any potential, likely, or known spill locations (and sources, if any)

No PCB spills occurred in any of the Facilities addressed in this HSA

Describe methods in which spills were mitigated, if any

No PCB spills occurred in any of the Facilities addressed in this HSA

**D&D RISS Facility Characterization
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Radiological Contaminants

Describe any potential, likely, or known radiological production or storage locations

Buildings 903A and 903B are used to decontaminate field equipment with trace amounts of radiological contamination. See the Historical Operations section above for a more detailed listing of the operations which occurred in the facilities addressed in this HSA.

Describe any potential, likely, or known spill locations (e.g., known leaking sealed radioactive sources, leaking waste drums, potentially contaminated drains, etc.)

None of the facilities in this HSA have had a radiological spill.

Describe methods in which spills were mitigated, if any

None of the facilities in this HSA have had a radiological spill.

Describe any potential, likely, or known isotopes of concern (e.g., weapons grade plutonium, uranium isotopes, pure beta emitters, mixed fission products, etc.)

Isotopes of concern include uranium and plutonium.

Describe any potential, likely, or known external facility contamination (e.g., stack release points, unfiltered ventilation, facility's physical location to known site releases, etc.)

See section below for information on IHSSs, PACs, and UBCs.

Environmental Restoration Concerns

Describe any ER concerns that could affect facility characterization (e.g., IHSSs, PACs, UBCs)

Buildings 903A, 903A2, and 903B are located near the following IHSSs, PACs, or UBCs. See individual IHSS, PAC, or UBC report for additional information.

- 1) 900-119 2, "East Scrap Metal Storage Area and Solvent Spill", NFA approved 1997 OU-1 CAD/ROD

Additional Information

Describe any additional information that may be useful during facility characterization (e.g., contaminant migration routes, waste handling operations, physical hazards, Historical Release Reports, WSRIC data, etc.)

None

References

Provide all sources of information utilized to gather data for facility history (e.g., documents, files, interviews)

Sources reviewed to complete this HSA were the RFETS Facility List, the Historical Release Report, Site Master List of RCRA Units, and the Site IHSS, PAC, and UBC databases. The WSRIC for those buildings with a WSRIC. In addition, a facility walkdown and interviews were performed.

Waste Volume Estimates and Material Types

D&D RISS Facility Characterization Historical Site Assessment Report December, 2002 Rev. 0

Facility	Concrete (cu ft)	Wood (cu ft)	Metal (cu ft)	Corrugated Sheet Metal (cu ft)	Wall Board (cu ft)	ACM (cu ft)	Other Waste (cu ft)
Building 903A	800	200	800	500	0	TBD	N/A
Building 903A2	50	200	0	0	0	TBD	N/A
Building 903B	1400	0	1700	1000	0	TBD	N/A
Further Actions <i>Recommend any further actions, if any (e g , characterization, decontamination, special handling, etc)</i> Begin the RLC/PDS process							
Note This HSA was performed prior to SME walkdowns, and chemical and radiological characterization package preparations SMEs should evaluate and/or verify all information during the RLC/PDS process SMEs may need to review additional documentation and perform additional interviews Information contained in this HSA only represents a "snapshot" in time Subsequent data may be obtained during SME walkdowns and chemical and radiological characterization package preparations, which may conflict with this report However, this report will not be amended, and the newer data will take precedence over the data in this report Newer Data will appear in the RLCR/PDSR							

Prepared By Doug Bryant / /s/ / December 2002
Name
Signature
Date

ATTACHMENT C

Radiological Data Summaries and Survey Maps

SURVEY UNIT 903A2-5-001
RADIOLOGICAL DATA SUMMARY - PDS

Survey Unit Description. 903A2 (Interior & Exterior)

903A2-5-001
PDS Data Summary

Total Surface Activity Measurements

	30	30
	Number Required	Number Obtained
MIN	-16.3	dpm/100 cm ²
MAX	42.2	dpm/100 cm ²
MEAN	8.9	dpm/100 cm ²
STD DEV	17.3	dpm/100 cm ²
TRANSURANIC DCGL _w	100	dpm/100 cm ²

Removable Activity Measurements

	30	30
	Number Required	Number Obtained
MIN	0.9	dpm/100 cm ²
MAX	3.6	dpm/100 cm ²
MEAN	0.0	dpm/100 cm ²
STD DEV	1.1	dpm/100 cm ²
TRANSURANIC DCGL _w	20	dpm/100 cm ²

**SURVEY UNIT 903A2-5-001
TSA - DATA SUMMARY**

Manufacturer	NE Tech	NE Tech	NE Tech	NE Tech
Model	DP 6	DP 6	DP 6	DP 6
Instrument ID#	1	2	3	8
Serial #	1136	1417	1136	1260
Cal Due Date	7/8/03	7/28/03	7/8/03	7/10/03
Analysis Date	6/9/03	6/9/03	6/11/03	6/12/03
Alpha Eff (c/d)	0.217	0.218	0.217	0.223
Alpha Bkgd (cpm)	3.3	0.7	2.0	2.0
Sample Time (min)	1.5	1.5	1.5	1.5
LAB Time (min)	1.5	1.5	1.5	1.5
MDIC (dpm/100cm ²)	48.0	48.0	48.0	48.0

Sample Location Number	Instrument ID#	Sample Gross Counts (cpm)	Sample Gross Activity (dpm/100cm ²)	LAB Gross Counts (cpm)	LAB Gross Activity (dpm/100cm ²)	Sample Net Activity (dpm/100cm ²) ¹
1	1	6.0	27.6	7.3	33.6	11.3
2	1	6.7	30.9	4.0	18.4	14.6
3	1	10.0	46.1	1.3	6.0	29.8
4	1	12.7	58.5	1.3	6.0	42.2
5	1	7.3	33.6	4.0	18.4	17.3
6	2	12.7	58.5	4.0	18.3	41.9
7	1	6.0	27.6	4.0	18.4	11.3
8	2	12.0	55.0	4.7	21.6	38.7
9	3	6.7	30.9	8.0	36.9	14.6
10	1	4.0	18.4	3.3	15.2	2.1
11	1	4.7	21.7	2.7	12.4	5.3
12	1	7.3	33.6	3.3	15.2	17.3
13	2	5.3	24.3	4.0	18.3	8.0
14	1	4.7	21.7	3.3	15.2	5.3
15	2	6.7	30.7	0.7	3.2	14.4
16	2	0.0	0.0	3.3	15.1	16.3
17	1	5.3	24.4	6.0	27.6	8.1
18	2	1.3	6.0	2.7	12.4	10.4
19	2	2.7	12.4	2.7	12.4	3.9
20	2	1.3	6.0	3.3	15.1	10.4
21	2	1.3	6.0	1.3	6.0	10.4
22	2	8.0	36.7	2.7	12.4	20.4
23	2	2.7	12.4	4.3	19.7	3.9
24	2	2.0	9.2	2.7	12.4	7.1
25	2	2.7	12.4	2.3	10.6	3.9
26	1	8.7	40.1	3.3	15.2	23.8
27	1	12.0	55.3	3.3	15.2	39.0
28	2	1.3	6.0	3.3	15.1	10.4
29	2	0.7	3.2	4.7	21.6	13.1
30	2	2.0	9.2	4.7	21.6	7.1

¹ Average LAB used to subtract from Gross Sample Activity

16.3	Sample LAB Average
MIN	16.3
MAX	42.2
MEAN	8.9
SD	17.3
Transuranic DCGL _w	100

QC Measurements

6 QC	8	17.3	77.6	2.0	9.0	65.7
8 QC	8	10.7	48.0	3.3	14.8	36.1

¹ Average QC LAB used to subtract from Gross Sample Activity

11.9	QC LAB Average
MIN	36.1
MAX	65.7
MEAN	50.9
Transuranic DCGL _w	100

**SURVEY UNIT 903A2-5-001
RSC - DATA SUMMARY**

Manufacturer	Eberline	Eberline	Eberline	Eberline
Model	SAC-4	SAC-4	SAC-4	SAC-4
Instrument ID#	4	5	6	7
Serial #	959	952	971	924
Cal Due Date	7/9/03	7/9/03	8/6/03	10/23/03
Analysis Date	6/12/03	6/12/03	6/12/03	6/12/03
Alpha Eff (c/d)	0 33	0 33	0 33	0 33
Alpha Bkgd (cpm)	0 2	0 3	0 0	0 1
Sample Time (min)	2	2	2	2
Bkgd Time (min)	10	10	10	10
MDC (dpm/100cm²)	9 0	9 0	9 0	9 0

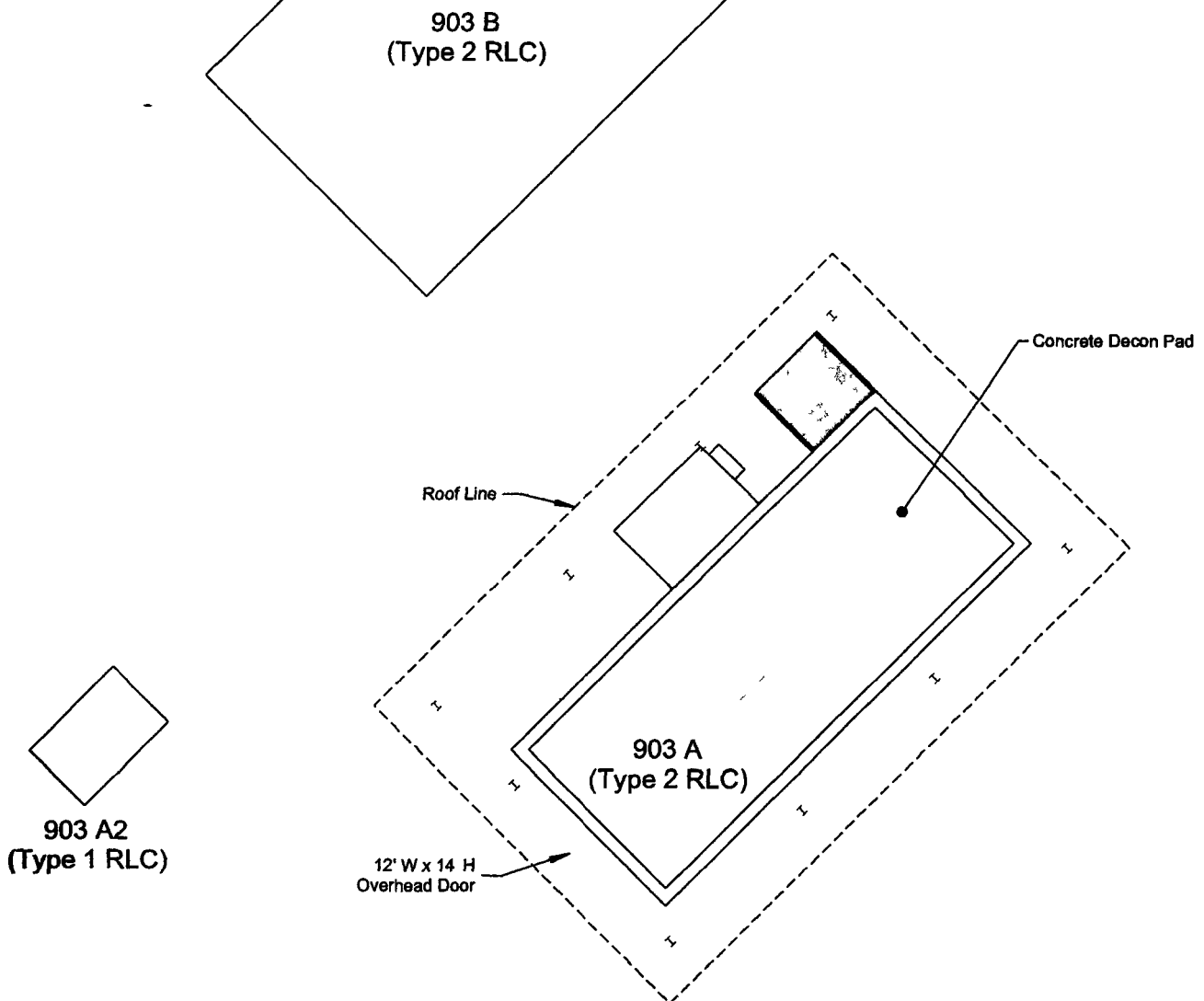
Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm²)
1	4	0	-0 6
2	5	0	-0 9
3	6	0	0 0
4	7	0	-0 3
5	4	0	-0 6
6	5	0	-0 9
7	6	0	0 0
8	7	0	-0 3
9	4	0	-0 6
10	5	3	3 6
11	6	1	1 5
12	7	0	-0 3
13	4	0	-0 6
14	5	0	-0 9
15	6	1	1 5
16	7	0	-0 3
17	4	0	-0 6
18	5	1	0 6
19	6	1	1 5
20	7	0	-0 3
21	4	1	0 9
22	5	0	-0 9
23	6	0	0 0
24	7	0	-0 3
25	4	0	-0 6
26	5	0	-0 9
27	6	1	1 5
28	7	0	-0 3
29	4	1	0 9
30	5	0	-0 9
		MIN	-0 9
		MAX	3 6
		MEAN	0 0
		SD	1 1
		Transuranic DCGL_w	20

TYPE 1 & 2 RLC SURVEYS FOR AREA 5, GROUP 14

Survey Area 5 Survey Unit N/A Classification N/A
 Buildings 903A, 903B, 903A2
 Description Group Locator

PAGE 1 OF 1

Area 5 - Group 14 903A, 903B, 903A2 Site Locator



SURVEY MAP LEGEND

- Smear & TSA Location
- Smear, TSA & Sample Location
- Open/Inaccessible Area
- Area in Another Survey Unit

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NO SCALE

This map for
reference only

Scan Survey Information
 Survey Instrument ID #(s) & RCT ID #(s)

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Prepared by GIS Dept 303-666 7707

Prepared for



CH2MHILL
 Communications Group

MAP ID 03-0201/GRPLOC

June 16, 2003

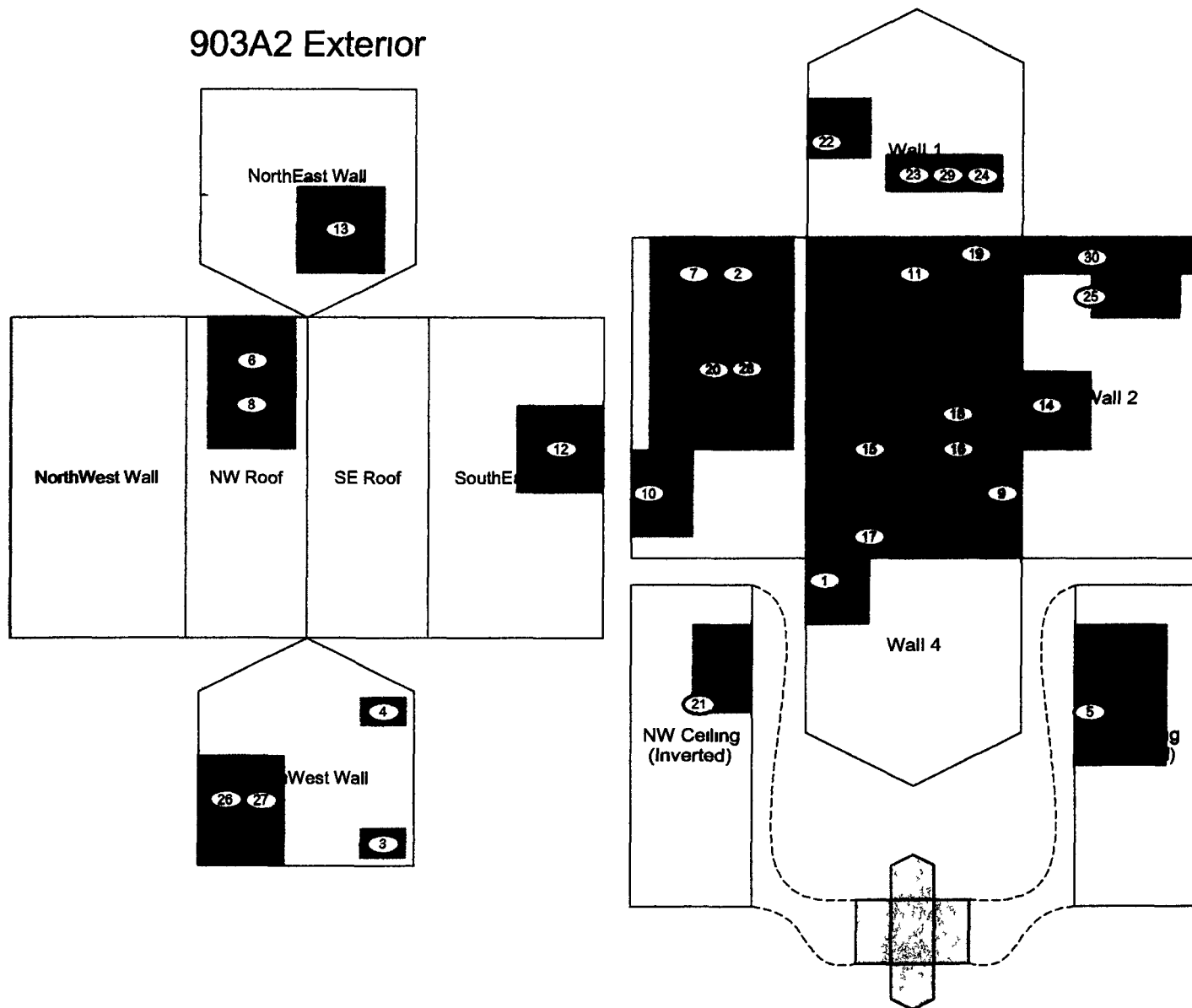
TYPE 1 RLC SURVEY FOR AREA 5 - GROUP 14

Survey Area 5 Survey Unit 903A2-5-001 Classification 3
 Building 903A2
 Survey Unit Description Building 903A2 Interior & Exterior
 Total Area 80 sq m Floor Area 9 sq m

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903A2 Interior

903A2 Exterior

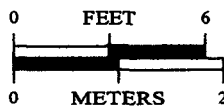


Scan Area

SURVEY MAP LEGEND

- Smear & TSA Location
- ◆ Smear, TSA & Sample Location
- Open/Inaccessible Area
- Area in Another Survey Unit

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1 inch = 6 feet 1 sq m = 25 sq ft

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MAP ID 03-0201/903A2-SC

June 16, 2003

Scan Survey Information
 Survey Instrument ID #(s) & RCT ID #(s)
 1, 2, 3

ATTACHMENT D

Chemical Data Summaries and Sample Maps

Asbestos Data Summary

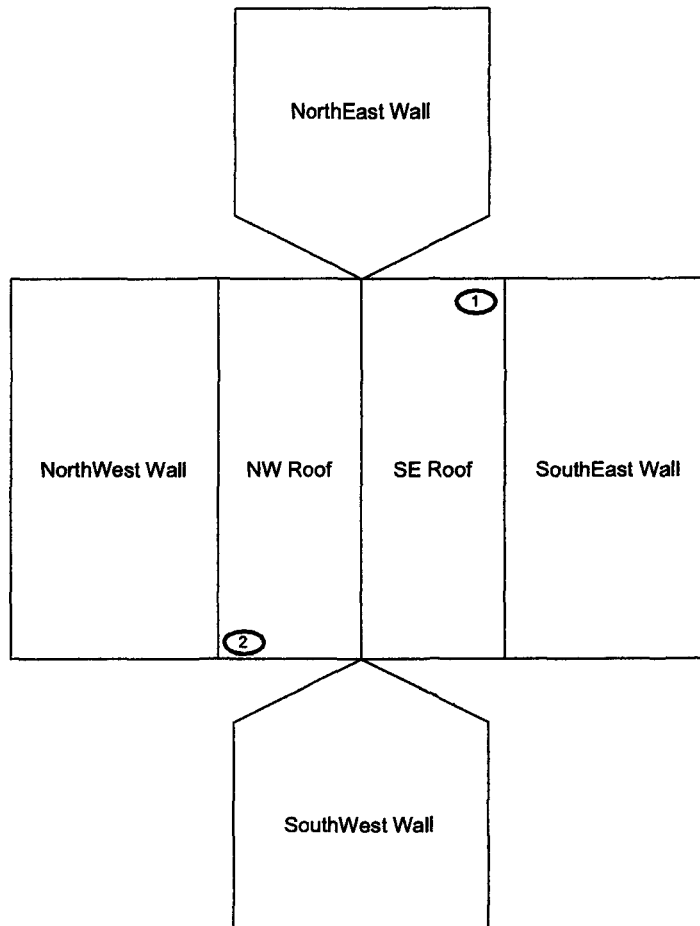
Sample Number	Map Location Point	Room	Material Sampled & Location	Analytical Results
Building 903A2				
903A2-05212003-315-201	1	Main	Black asphalt roofing shingle	None Detected
903A2-05212003-315-202	2	Main	Black asphalt roofing shingle	None Detected

CHEMICAL SAMPLE MAP

Building 903A2
Asbestos

PAGE 1 OF 1

903A2 Exterior



SURVEY MAP LEGEND		NE ↑	 0 FEET 6 0 METERS 2	U S Department of Energy Rocky Flats Environmental Technology Site	
● Asbestos Sample Location	Neither the United States Government, nor Kaiser Hill Co nor CH2M Hill, nor any agency thereof, nor any of their employees, makes any warranty express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights			Prepared by GIS Dept 303-986 7707	Prepared for
▲ Beryllium Sample Location					Communications Group
■ Lead Sample Location					
◆ RCRA/CERCLA Sample Location					
⊙ PCB Sample Location					
	■ Open/Inaccessible Area				
	□ Area in Another Survey Unit				
			1 inch = 6 feet 1 grid sq = 25 sq m.	MAP ID 03-0201/903A2-ASB	June 16, 2003

Beryllium Data Summary

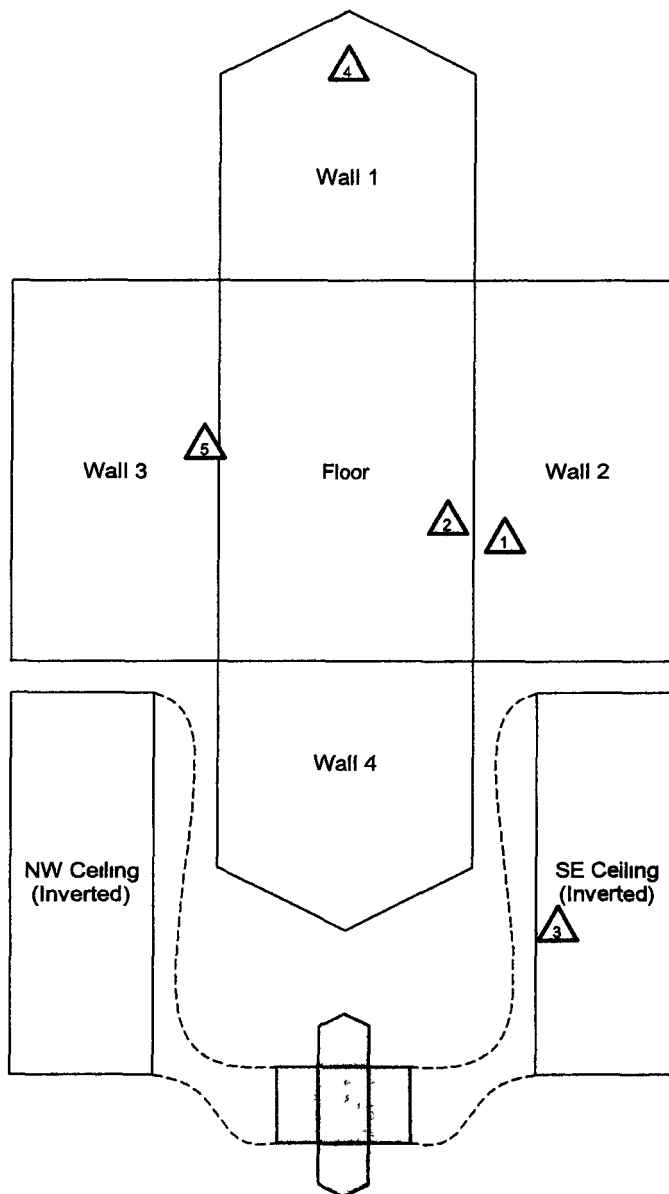
Sample Number	Map Survey Point Location	Sample Location	Result ($\mu\text{g}/100\text{ cm}^2$)
Building 903A2			
903A2-05212003-315-101	1	On wooden work bench	< 0.1
903A2-05212003-315-102	2	On tar paper floor	< 0.1
903A2-05212003-315-103	3	On wall plate, south wall	< 0.1
903A2-05212003-315-104	4	On door header, east wall	< 0.1
903A2-05212003-315-105	5	On wall/floor plate, north wall	< 0.1

CHEMICAL SAMPLE MAP

Building 903A2
Beryllium

PAGE 1 OF 1

903A2 Interior



SURVEY MAP LEGEND

- Asbestos Sample Location
- Beryllium Sample Location
- Lead Sample Location
- RCRA/CERCLA Sample Location
- PCB Sample Location

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- Open/Inaccessible Area
- Area in Another Survey Unit

NE



1 inch = 6 feet 1 grid sq = 25 sq. m.

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Prepared for:



CH2MHILL
Communications Group

MAP ID 03-0201/903A2-BE

June 16, 2003

ATTACHMENT E

Data Quality Assessment (DQA) Detail

DATA QUALITY ASSESSMENT (DQA)

VERIFICATION & VALIDATION OF RESULTS

V&V of the data confirm that appropriate quality controls are implemented throughout the sampling and analysis process, and that any substandard controls result in qualification or rejection of the data in question. The required quality controls and their implementation are summarized in a tabular, checklist format for each category of data – radiological surveys and chemical analyses (specifically beryllium).

DQA criteria and results are provided in a tabular format for each suite of surveys or chemical analyses performed, the radiological survey assessment is provided in Table E-1, asbestos in E-2 and beryllium in E-3. A data completeness summary for all results is given in Table E-4.

All relevant Quality records supporting this report are maintained in the RISS Characterization Project Files. This report will be submitted to the CERCLA Administrative Record for permanent storage within 30 days of approval by the Regulators. All radiological data are organized into Survey Packages, which correlate to unique (MARSSIM) Survey Units. Chemical data are organized by RIN (Report Identification Number) and are traceable to the sample number and corresponding sample location.

Beta/gamma survey designs were not implemented for Building 903A2 based on the conservatism of the transuranic limits used as DCGLs in the unrestricted release decision process. Survey designs were implemented based on the transuranic limits used as DCGLs in the unrestricted release decision process. All survey results were evaluated against, and were less than the Transuranic DCGL_w (100 dpm/100cm²) and the Uranium DCGL_w (5,000 dpm/100cm²) unrestricted release limits.

Consistent with EPA's G-4 DQO process, the radiological survey design (for those survey units performed per PDS requirements) was optimized by checking actual measurement results (acquired during pre-demolition surveys) against model output with original estimates. Use of actual sample/survey (result) variances in the MARSSIM DQO model confirms that an adequate number of surveys were acquired.

SUMMARY

In summary, the data presented in this report have been verified and validated relative to the quality requirements and project decisions as stated in the original DQOs. All data are useable based on qualifications stated herein and are considered satisfactory without qualification. All media surveyed and sampled yielded results less than their associated action levels and with acceptable

Based upon an independent review of the radiological data, it is determined that the original project DQOs satisfied MARSSIM guidance. All facility contamination levels were below applicable unrestricted release levels. Minimum survey requirements were met, sampling/survey protocol was performed in accordance with applicable procedures, survey units were properly designed and bounded, and instrument performance and calibration were within acceptable limits thereby ensuring accuracy criteria. All results meet the PDS unrestricted release criteria.

Chain of Custody was intact, documentation was complete, hold times were acceptable (where applicable,) and packaging integrity/custody seals were maintained throughout the sampling/analysis process. Level 2 Isolation Controls have been posted to prevent the inadvertent introduction of contamination into the facility. On this basis, Building 903A2 meets the unrestricted release criteria with the confidences stated herein.

Table E-1 V&V of Radiological Surveys For Building 903A2

V&V CRITERIA, RADIOLOGICAL SURVEYS		K-H RSP 16 00 Series MARSSIM (NUREG-1575)		
QUALITY REQUIREMENTS				
	Parameters	Measure	frequency	COMMENTS
ACCURACY	initial calibrations	90%<x<110%	≥1	Multi-point calibration through the measurement range encountered in the field, programmatic records
	daily source checks	80%<x<120%	≥1/day	Performed daily/within range
	local area background Field	typically < 10 dpm	≥1/day	All local area backgrounds were within expected ranges (i e , no elevated anomalies)
PRECISION	field duplicate measurements for TSA	≥5% of real survey points	≥10% of reals	N/A
REPRESENTATIVENESS	MARSSIM methodology Survey Unit 903A2-5-001	statistical and biased	NA	Random w/ statistical confidence
	Survey Maps	NA	NA	Random and biased measurement locations controlled/mapped to ±1m
	Controlling Documents (Characterization Pkg, RSPs)	qualitative	NA	Refer to the Characterization Package (planning document) for field/sampling procedures (located in Project files), thorough documentation of the planning, sampling/analysis process, and data reduction into formats
COMPARABILITY	units of measure	dpm/100cm ²	NA	Use of standardized engineering units in the reporting of measurement results
COMPLETENESS	Plan vs Actual surveys usable results vs unusable	>95% >95%	NA	See Table E-4 for details
SENSITIVITY	detection limits	TSA ≤50 dpm/100cm ² RA ≤10 dpm/100cm ²	all measures	MDAs ≤ 50% DCGL _w per MARSSIM guidelines

Table E-2 V&V of Asbestos Results For Building 903A2

V&V CRITERIA, CHEMICAL ANALYSES		DATA PACKAGE	
ASBESTOS	METHOD EPA 600/R-93/116	LAB ---->	Reservoirs Environmental, Inc
		RIN ---->	RIN03Z1729
QUALITY REQUIREMENT		Measure	Frequency
ACCURACY	Calibrations Initial/continuing	Below detectable amounts	≥1
PRECISION	Actual Number Sampled LCSD Lab duplicates	all below detectable amounts	≥ 2 samples
REPRESENTATIVENESS	COC	Qualitative	NA
	Hold times/preservation	Qualitative	NA
	Controlling Documents (Plans, Procedures, maps, etc)	Qualitative	NA
COMPARABILITY	Measurement Units	% by bulk volume	NA
COMPLETENESS	Plan vs Actual samples Usable results vs unusable		NA
SENSITIVITY	Detection limits	Qualitative	
		<1% by volume	all measures
			N/A
			COMMENTS
			Semi-quantitative, per (microscopic) visual estimation
			Semi-quantitative, per (microscopic) visual estimation
			Chain-of-Custody intact completed paperwork, containers w/ custody seals
			N/A
			See original Chemical Characterization Package (planning document), for field/sampling procedures (located in project file,) thorough documentation of the planning, sampling/analysis process, and data reduction into formats
			Use of standardized engineering units in the reporting of measurement results
			Final number of samples at Certified Inspector's discretion - See Table E-4
			N/A

Table E-3 V&V Of Beryllium For Building 903A2

V&V CRITERIA, CHEMICAL ANALYSES		DATA PACKAGE	
BERYLLIUM	Prep NMAM 7300	LAB ---->	Reservoirs Environmental, Inc
	METHOD OSHA ID-125G	RIN ---->	RIN03D1730
QUALITY REQUIREMENTS		Measure	Frequency
ACCURACY	Calibrations Initial	linear calibration	≥1
	Continuing	80%≤%R<120%	≥1
	LCS/MS	80%≤%R<120%	≥1
	Blanks - lab & field	<MDL	≥1
	interference check std (ICP)	NA	NA
PRECISION	LCSD	80%≤%R<120% (RPD<20%)	≥1
	field duplicate	all results < RL	≥1
	COC	Qualitative	NA
REPRESENTATIVENESS	hold times/preservation	Qualitative	NA
	Controlling Documents (Plans, Procedures, maps, etc)	Qualitative	NA
	measurement units	ug/100cm ²	NA
COMPARABILITY			
COMPLETENESS	Plan vs Actual samples	>95%	NA
SENSITIVITY	usable results vs unusable	>95%	NA
	detection limits	MDL of 0.012 ug/100cm ²	all measures
		No qualifications significant enough to change project decisions, i.e., classification of a Type I facility confirmed All results were below associated action levels	

Table E-4 Data Completeness Summary For Building 903A2

ANALYTE	Building/Area/ Unit	Sample Number Planned (Real & QC) ^A	Sample Number Taken (Real & QC)	Project Decisions (Conclusions) & Uncertainty	Comments (RIN, Analytical Method, Qualifications, etc)
Asbestos	Building 903A2 (exterior)	2 biased (exterior)	2 biased (exterior)	No ACM present, all results < 1% by volume	40 CFR763.86, 5 CCR 1001-10, EPA 600/R-93/116 RIN03Z1729
Beryllium	Building 903A2 (interior)	5 biased (interior)	5 biased (interior)	No beryllium contamination found, all results are below associated action levels	OSHA ID-125G RIN03D1730 No results above action level (0.2 ug/100cm ²) or investigative level (0.1 ug/100cm ²)
Radiological	Survey Area 5 Survey Unit 903A2-5-001 Building 903A2 - Decon complex & storage shed (interior and exterior)	25 α TSA (15 random/10 biased) and 25 α Smears (15 random/10 biased) 5 α TSA and 5 α Smears (equipment) 2 QC TSA 100% scan interior floor, 10% scan on remaining interior and exterior surfaces	25 α TSA (15 random/10 biased) and 25 α Smears (15 random/10 biased) 5 α TSA and 5 α Smears (equipment) 2 QC TSA 100% scan interior floor, 10% scan on remaining interior and exterior surfaces	No contamination found at any location, all values below PDS unrestricted release limits	Transuranic and/or Uranium DCGs as applicable